ber, were observed by Mr. Burton in the neighbourhood of Dublin at about the following hours of local time, $7^h\ 15^m$, $7^h\ 45^m$ and $8^h\ 15^m$.

The following table in which for more convenience the local times have been converted into Greenwich times presents Mr. Burton's results:—

Greenwich Mean Time. Nov. 27, 1872.	Position of Radiant Point. R.A.	N. P. D.
h m	c ′	o ′
7 40	17 0	43 30
8 10	19 30	45 10
8 40	22 25	46 25

Mr. Burton observed from a station nearly 25^m West longitude and $54°\ 12'$ North latitude.

As regards the weight to be attached to the observations,— The first of Mr. Burton's observations was taken with a fair amount of care, and the other two with the utmost attainable accuracy, on account of his having been struck with the motion of the radiant point. His further observation was unfortunately stopped by cloud.

Ephemeris for Physical Observations of the Moon.
By A. Marth, Esq.

(*Communicated by R. S. Newall, Esq.*)

Though the phenomena attending sunrise and sunset on the Moon's surface have been frequently looked at, because affording some of the most striking and interesting of telescopic sights, they have in reality been so little "observed," or at least to so little practical purpose, that for want of the needed "observations" no exact prediction can yet be made of what phenomena may be expected to be seen at a given time or at what time some given phenomenon may be expected to recur. Yet the observations required for the purpose are of the simplest character, and can easily be made by zealous amateurs in possession of a good telescope and of Mädler's map of the Moon, who are willing to devote to them the needed time and patience. That such observations have not been abundantly made, is perhaps chiefly due to the want of a proper ephemeris of the Sun's selenographical position (such as has been published monthly for some time past in the *Astron. Register*), without which the observations cannot be made available for further use, but it may also be partly due to the simple circumstance, that some amateurs are perhaps not sufficiently aware, that by merely noting the time and the exact locality of the occurrence of some lunar phenomenon they secure the data needed for the prediction of its recurrence.

I submit new ephemerides supplying, for the next three lunations, the selenocentrical places of the Sun and also of the Earth,

referred to the system of selenographical co-ordinates. The ephemerides are given in the form which seems to me the most suitable for practical use. For the sake of obvious convenience, selenographical longitudes (λ) have been supplanted by their complements ($90° - \lambda$), and the latter are called "co-longitudes." Accordingly on the map the co-longitude of the preceding edge is 0°, that of the central meridian 90°, and that of the following edge 180°. The computations have been made so that the last figures given can be relied on. The assumed inclination of the equator to the lunar ecliptic is $1°·536$.

I have also prepared a list comprising 600 lunar spots, which supplies the data for finding by means of a trifling computation, the Sun's co-longitude and consequently the time when the Sun's centre is in the true horizon of any of these spots. For the purpose it is only required to multiply the Sun's selenographical latitude by the factor given in the second (or, at sunset, the last) column of the list, to add the product to the number preceding the factor and to ascertain, by reference to the monthly ephemeris, the time when the Sun's centre reached the co-longitude thus found. For instance, we have for the evening of Feb. 5,—

At 6^h G.M.T.   Sun's colongitude 8°·72   Sun's latitude − 1°·50
 12^h   „   „   11·76   „   „

Referring now to the list we find for *Plato* γ:— Sun's co-longitude at sunrise $= 6°·8 - 1·20 \times$ Sun's latitude $= 6°·8 + 1°·80 = 8°·60$, which the Sun's centre reaches about 5^h 46^m. By making the same little computation for a series of spots and arranging the results in order of time, we get,—

			°		h	
Sun's centre in true horizon of Plato γ (in lat.	50 N) at	5	46
„	„	Lalande	4	S	5	48
„	„	Eratosthenes E	15	N	6	59
„	„	Alpetragius C	14	S	7	58
„	„	Schröter C	8	N	7	58
„	„	Pico B	43	N	8	21
„	„	Lalande A	6	S	8	24
„	„	Archimedes B	27	N	9	3
„	„	Tycho	43	S	9	27
„	„	Pico	45	N	9	59
„	„	Guerike C	11	S	11	30
„	„	Pilatus C	28	S	11	42
„	„	Eratosthenes	14	N	12	8
„	„	Gambart B	2	N	12	22
„	„	Pico D	43	N	14	26
„	„	Plato E	51	N	15	56

The times thus found are merely the times when the Sun is

in the true horizon of the assumed selenographical positions of the spots. What is now wanted are real observations of the times and localities of the phenomena attending sunrise and sunset,—a class of observations which recommends itself strongly to amateurs, who can afford the time and are desirous to do useful service to science, provided it does not demand much computation. Will they give their help?

Sun's Co-longitudes

At Sunrise.			Latitude.	At Sunset.	
279·0	+ 0·07	Kästner A	— 4·2	99·0	—0·07
282·74	— ·04	Schubert A	+ 2·46	102·74	+ ·04
284·5	—0·75	Gauss A	+ 36·8	104·5	+0·75
284·5	—1·38	Mare Humb. E	+ 54·1	104·5	+ 1·38
285·0	+0·70	Marinus E	—35·1	105·0	—0·70
286·00	— ·24	Hansen A	+ 13·29	106·00	+ ·24
286·12	+ ·17	Lapeyrouse A	— 9·39	106·12	— ·17
287·0	— ·52	Oriani A	+ 27·3	107·0	÷ ·52
287·6	+ ·29	Behaim A	—16·1	107·6	— ·29
289·0	— ·09	Neper *a*	+ 5·0	109·0	+ ·09
290·0	+ ·51	Legendre *a*	—27·0	110·0	— ·51
290·4	+ ·12	Maclaurin D	— 6·6	110·4	— ·12
290·7	—0·37	Alhazen *α*	+ 20·1	110·7	+0·37
291·27	+ 1·00	Vega A	—44·95	111·27	—1·00
291·5	—0·22	Condorcet	+ 12·5	111·5	+0·22
291·9	—0·58	Hahn A	+ 30·05	111·9	+0·58
292·3	+ 1·87	Boussingault G	—61·9	112·3	—1·87
293·1	—0·69	Berosus B	+ 34·7	113·1	+0·69
293·9	+ ·07	Maclaurin E	— 3·7	113·9	— ·07
295·0	— ·26	Prom. Agarum	+ 14·8	115·0	+ ·26
295·1	— ·43	Eimmart	÷ 25·5	115·1	+ ·43
295·22	— ·94	Struve B	+ 45·34	115·22	+ ·94
297·0	— ·14	Firmicus β	÷ 8·1	117·0	÷ ·14
297·3	+0·55	Hase *a*	—28·8	117·3	—0·55
297·3	—1·42	Endymion A	—54·8	117·3	+ 1·42
298·1	+ 1·12	Vega H	—48·2	118·1	—1·12
299·0	+0·35	Vendelinus B	—19·4	119·0	—0·35
299·4	— ·09	Apollonius E	÷ 4·9	119·4	+ ·09
299·43	+ ·15	Langrenus B	—8·38	119·43	— ·15
300·1	+ ·25	Vendelinus A	—13·9	120·1	— ·25
300·3	÷ ·01	Maclaurin C	— 0·4	120·3	— ·01
300·7	— ·59	Burckhardt B	+ 30·3	120·7	+ ·59
300·74	+ ·46	Petavius A	—24·65	120·74	— ·46
300·8	+ ·70	Furnerius B	—35·1	120·8	— ·70

Sun's Co-longitudes

At Sunrise.			Latitude.	At Sunset.	
301·2	− ·76	Messala B	+ 37·1	121·2	+ ·76
301·8	− ·67	Geminus C	+ 33·75	121·8	+ ·67
302·0	+ ·80	Fraunhofer G	− 38·7	122·0	− ·80
302·14	+ ·65	Furnerius A	− 33·10	122·14	− ·65
302·2	− ·19	Azout △	+ 10·75	122·2	+ ·19
302·5	+ ·07	Langrenus B	− 4·2	122·5	− ·07
303·8	+ ·38	Petavius B	− 20·8	123·8	− ·38
303·9	− ·41	Cleomedes F.	+ 22·3	123·9	+ ·41
304·2	− ·83	Hook d	+ 39·8	124·2	+ ·83
304·5	+ ·46	Petavius г	− 24·6	124·5	− ·46
305·3	+ 0·56	Snellius	− 29·4	125·3	− 0·56
305·69	− 1·51	Endymion G	+ 56·48	125·69	+ 1·51
305·71	− 0·54	Cleomedes A	+ 28·40	125·71	+ 0·54
306·13	− ·26	Picard	+ 14·46	126·13	+ ·26
306·9	+ ·62	Stevinus A	− 32·0	126·9	− ·62
307·0	− ·22	Picard α	+ 12·5	127·0	+ ·22
307·0	− 0·73	Messala a	+ 36·2	127·0	+ 0·73
307·3	+ 1·01	Steinheil F	− 45·3	127·3	− 1·01
307·7	− 0·33	Picard A	+ 18·1	127·7	+ 0·33
308·0	+ 1·78	Hagecius K	− 60·6	128·0	− 1·78
308·0	− 0·39	Picard ξ	+ 21·2	128·0	+ 0·39
309·0	+ 1·40	Biela A	− 54·4	129·0	− 1·40
309·4	+ 0·12	Goclenius A	− 7·0	129·4	− 0·12
309·93	+ ·41	Biot	− 22·34	129·93	− ·41
310·1	+ ·31	Cook B	− 17·2	130·1	− ·31
310·3	− 0·13	Taruntius A	+ 7·2	130·3	+ 0·13
310·79	− 1·88	Thales	+ 61·97	130·79	+ 1·88
312·2	− 0·41	Macrobius f	+ 22·1	132·2	+ 0·41
312·3	+ ·40	Biot A	− 21·6	132·3	− ·40
312·5	+ ·54	Reichenbach a	− 28·5	132·5	− ·54
312·6	− 0·50	Tralles A	+ 26·8	132·6	+ 0·50
312·6	+ 1·05	Steinheil H	− 46·4	132·6	− 1·05
312·85	+ 0·03	Messier	− 1·98	132·85	− 0·03
312·9	− 1·00	Atlas A	+ 45·05	132·9	+ 1·00
313·1	− 0·81	Franklin	+ 38·9	133·1	− 0·81
313·3	+ ·32	Cook A	− 17·55	133·3	− ·32
313·47	− ·29	Proclus	+ 16·15	133·47	+ ·29
313·6	+ ·74	Rheita A	− 36·5	133·6	− ·74
314·03	− ·10	Taruntius	+ 5·67	134·03	+ ·10
314·34	− 0·87	Cepheus A	+ 40·99	134·34	+ 0·87
314·6	+ 1·27	Rosenberger B	− 51·7	134·6	− 1·27
314·7	− 1·52	Strabo D	+ 56·7	134·7	+ 1·52
314·8	+ 0·47	Borda △	− 25·15	134·8	− 0·47

Sun's Co-longitudes

At Sunrise.		Latitude.		At Sunset.	
315·1	÷ ·10	Messier A	− 5·8	135·1	− ·10
315·2	− ·21	Palus Somnii B	+ 11·8	135·2	÷ ·21
315·5	− ·52	Römer G	+ 27·5	135·5	÷ ·52
315·55	÷ ·18	Goclenius A	− 9·98	135·55	− ·18
315·7	−0·38	Macrobius	+ 20·6	135·7	+ 0·38
316·3	− 1·04	Atlas Γ	+ 46·1	136·3	+ 1·04
316·4	+ 0·83	Metius B	− 39·7	136·4	− 0·83
316·5	− 1·24	Hercules A	+ 51·2	136·5	+ 1·24
317·5	− 0·05	Taruntius B	+ 2·6	137·5	+ 0·05
317·5	+ ·37	Santbech B	− 20·5	137·5	− ·37
318·1	− ·24	Palus Somnii A	+ 13·5	138·1	+ ·24
318·4	+ ·45	Santbech A	− 24·2	138·4	− ·45
318·5	+ 0·07	Messier C	− 4·0	138·5	− 0·07
318·7	+ 1·04	Fabricius K	− 46·0	138·7	− 1·04
318·9	+ 0·23	Colombo A	− 12·9	138·9	− 0·23
319·0	− 2·54	Arnold *a*	+ 68·5	139·0	+ 2·54
319·23	+ 0·90	Fabricius A	− 42·13	139·23	− 0·90
319·9	− 0·07	Taruntius F	+ 4·1	139·9	+ 0·07
320·0	+ 1·62	Nearch. A	− 58·3	140·0	− 1·62
320·1	− 0·36	Macrobius *a*	+ 19·6	140·1	+ 0·36
320·2	+ ·16	Guttemberg A	− 9·2	140·2	− ·16
320·4	+ ·28	Bohnenberger A	− 15·45	140·4	− ·28
320·5	− ·57	Römer *c*	+ 29·5	140·5	+ ·57
320·6	+ ·60	Neander A	− 31·0	140·6	− ·60
320·9	− 0·76	Cepheus B	+ 37·0	140·9	+ 0·76
321·61	− 1·05	Hercules	+ 46·39	141·61	+ 1·05
321·8	− 0·18	Sansen A	+ 10·1	141·8	+ 0·18
323·1	+ ·13	Capella A	− 7·6	143·1	− ·13
323·3	+ 1·28	Vlacq A	− 52·0	143·3	− 1·28
323·5	+ 0·52	Neander A	− 27·3	143·5	− 0·52
323·5	+ ·38	Fracastor. H	− 20·9	143·5	− ·38
323·6	+ ·75	Stiborius A	− 37·0	143·6	− ·75
323·68	− ·47	Römer	÷ 25·31	143·68	+ ·47
324·3	− 0·63	Posidonius G	+ 32·2	144·3	+ 0·63
324·4	+ 1·03	Fabricius C	− 45·9	144·4	− 1·03
324·8	− 0·37	Maraldi	÷ 20·4	144·8	+ 0·37
324·8	− 1·72	Gärtner A	+ 59·8	144·8	+ 1·72
325·20	+ 0·13	Capella A	− 7·54	145·20	− 0·13
325·5	− 1·21	Baily B	+ 50·45	145·5	+ 1·21
326·2	+ 3·31	Euctemon B	+ 73·2	146·2	+ 3·31
326·3	+ 0·31	Fracastor. E	− 17·45	146·3	− 0·31
326·5	− 0·71	Posidonius K	+ 35·5	146·5	+ 0·71
326·49	− 1·89	Democritus	+ 62·14	146·49	+ 1·89

Sun's Co-longitudes

At Sunrise.		Latitude.	At Sunset.	
326.6	−0.32	Vitruvius A	+17.6	146.6	+0.32
326.9	+ .14	Isidorus A	− 8.0	146.9	− .14
327.64	+ .01	Censorinus	− 0.44	147.64	− .01
327.7	− .15	Sansen C	+ 8.8	147.7	+ .15
327.7	− .85	Posidonius D	+40.2	147.7	+ .85
327.7	+ .94	Fabricius G	−43.2	147.7	− .94
328.1	+ .68	Stiborius A	−34.3	148.1	− .68
328.41	+0.56	Piccolomini Δ	−29.18	148.41	−0.56
328.5	+1.62	Hommel f	−58.3	148.5	−1.62
328.6	+0.41	Fracastor. α	−22.4	148.6	−0.41
328.97	− .32	Vitruvius	+17.60	148.97	+ .32
329.4	−0.71	Posidonius C	+35.55	149.4	+0.71
329.6	−1.13	Baily A	+48.6	149.6	+1.13
329.9	−0.64	Littrow α	+32.8	149.9	+0.64
329.9	− .91	Mason	+42.3	149.9	+ .91
330.4	+ .19	Theophilus A	−11.0	150.4	− .19
330.42	−0.04	Maskelyne	+ 2.53	150.42	+0.04
330.45	+1.19	Pitiscus A	−49.98	150.45	−1.19
330.5	+0.47	Piccolomini A	−25.4	150.5	−0.47
330.64	+1.97	Mutus	−63.10	150.64	−1.97
330.7	+0.08	Torricelli A	− 4.3	150.7	−0.08
330.8	+ .35	Beaumont C	−19.4	150.8	− .35
330.88	− .62	Posidonius A	+31.59	150.88	+ .62
330.9	+ .80	Riccius d	−39.6	150.9	− .80
330.94	− .49	Le Monnier A	+25.99	150.94	+ .49
331.0	− .21	Sansen, pic.	+11.75	151.0	+ .21
331.8	−0.35	Vitruvius α	+19.4	151.8	+0.35
332.47	−1.00	Bürg	+44.95	152.47	+1.00
332.5	+0.28	Beaumont A	−15.8	152.5	−0.28
332.5	+ .71	Riccius A	−35.2	152.5	− .71
333.3	+ .41	Polybius A	−22.1	153.3	− .41
333.70	+ .20	Theophilus A	−11.35	153.70	− .20
334.0	− .31	Plinius A	+17.0	154.0	+ .31
334.3	+ .04	Torricelli C	− 2.1	154.3	− .04
334.6	+ .90	Nicolai	−42.0	154.6	− .90
334.9	+ .48	Polybius B	−25.5	154.9	− .48
335.4	− .58	Posidonius γ	+30.0	155.4	+ .58
335.51	+0.62	Lindenau	−31.87	155.51	−0.62
335.7	+2.54	Manzinus α	−68.5	155.7	−2.54
335.9	+0.12	Theophilus E	− 6.7	155.9	−0.12
335.9	+0.32	Catharina α	−17.6	155.9	−0.32
336.44	−1.57	Aristoteles C	+57.43	156.44	+1.57
336.61	−0.27	Plinius	+15.29	156.61	+0.27

Sun's Co-longitudes

At Sunrise.			Latitude.	At Sunset.	
336.7	− .98	Bürg B	+ 44.5	156.7	+ .98
337.0	+ .79	Büsching B	− 38.4	157.0	− .79
337.31	+ .24	Cyrillus A	− 13.50	157.31	− .24
337.7	− .70	Posidonius E	+ 34.9	157.7	+ .70
337.7	+ .09	Hypatia A	− 4.9	157.7	− .09
337.8	+ .52	Pons c	− 27.6	157.8	− .52
338.4	− .30	Prom. Acherusia	+ 16.45	158.4	+ .30
338.4	+ .18	Kant A	− 10.4	158.4	− .18
338.5	− .21	Ross	+ 11.6	158.5	+ .21
338.5	+ .35	Catharina A	− 19.3	158.6	− .35
338.8	− 0.11	Arago	+ 6.1	158.8	+ 0.11
338.9	+ 1.35	Baco a	− 53.4	158.9	− 1.35
339.0	+ 0.02	Hypatia C	− 1.0	159.0	− 0.02
339.4	− .47	Bessel A	+ 25.0	159.4	+ .47
339.5	− .25	Menelaus A	+ 14.3	159.5	+ .25
340.0	− .08	Arago A	+ 4.6	160.0	+ .08
340.3	+ 0.75	Büsching C	− 37.0	160.3	− 0.75
340.4	− 1.02	Eudoxus A	+ 45.5	160.4	+ 1.02
340.4	− 1.19	Aristoteles a	+ 49.9	160.4	+ 1.19
340.5	+ 0.41	Fermat A	− 22.1	160.5	− 0.41
340.6	− .59	Posidonius E	+ 30.4	160.6	+ .59
341.0	+ .10	Alfraganus	− 5.5	161.0	− .10
341.1	− .30	Taquet	+ 16.5	161.1	+ .30
341.4	− .02	Ritter A	+ 0.9	161.4	+ .02
341.6	+ .60	Zagut d	− 31.1	161.6	+ .60
342.0	+ .28	Tacitus A	− 15.9	162.0	+ .28
342.0	− .86	Eudoxus Δ	+ 40.6	162.0	+ .86
342.0	+ 0.86	Buch A	− 40.7	162.0	− 0.86
342.0	+ 1.05	Barocius β	− 46.3	162.0	− 1.05
342.4	− 0.40	Bessel	+ 21.7	162.4	+ 0.40
342.6	− .16	Sosigenes	+ 8.9	162.6	+ .16
342.75	+ .03	Delambre	− 1.79	162.75	− .03
342.8	− .96	Eudoxus α	+ 43.9	162.8	+ .96
342.87	− .05	Dionysius	+ 2.85	162.87	+ .05
343.4	+ .38	Sacrobosco F	− 21.0	163.4	− .38
343.7	+ 0.09	Taylor Γ	− 5.25	163.7	− 0.09
343.9	+ 1.66	Ch. Mayer A	+ 59.0	163.9	+ 1.66
344.2	− 0.29	Menelaus	+ 16.2	164.2	+ 0.29
344.32	+ 0.44	Sacrobosco A	− 23.7	164.32	− 0.44
344.4	− 2.81	Meton B	+ 70.4	164.4	+ 2.81
344.5	− 0.74	Calippus K	+ 36.6	164.5	+ 0.74
344.6	+ 0.01	Theon sen.	− 0.7	164.6	− 0.01
344.8	+ 1.59	Jacobi a	− 57.9	164.8	− 1.59

Sun's Co-longitudes

At Sunrise.			Latitude.	At Sunset.	
345.0	−0.07	Dionysius A	+ 4.0	165.0	+0.07
345.0	+0.32	Almanon A	−17.5	165.0	−0.32
345.3	−1.20	Aristoteles α	+50.1	165.3	+1.20
345.6	+0.53	Pontanus	−27.7	165.6	−0.53
345.80	+0.18	Dollond	−10.25	165.80	−0.18
345.9	+1.08	Clairaut D	−47.3	165.9	−1.08
346.0	−0.17	Cæsar β	+ 9.4	166.0	+0.17
346.0	−0.59	Linné B	+30.6	166.0	+0.59
346.0	+3.87	Simpelius	−75.5	166.0	−3.87
346.3	+0.36	Geber A	−19.6	166.3	−0.36
346.32	+ .95	Maurolycus A	−43.39	166.32	− .95
346.4	+ .70	Gemma Fris. B	−35.0	166.4	− .70
346.4	+ .24	Abulfeda A	−13.6	166.4	− .24
346.9	− .31	Sulpicius A	+17.3	166.9	+ .31
347.4	− .93	Eudoxus D	+42.9	167.4	+ .93
347.5	−0.11	Silberschlag	+ 6.5	167.5	+0.11
347.5	−4.01	Scoresby	+76.0	167.5	+4.01
347.8	+0.06	Taylor A	− 3.5	167.8	−0.06
348.46	− .53	Linné	+27.79	168.46	+ .53
348.6	+ .84	Maurolycus B	−40.1	168.6	− .84
348.7	−0.35	Sulpicius Gallus	+19.5	168.7	+0.35
349.2	+2.02	Pentland A	−63.7	169.2	−2.02
349.2	+0.45	Azophi A	−24.3	169.2	−0.45
349.4	+ .16	Boscovich A	+ 9.1	169.4	+ .16
349.4	+ .60	Poisson b	−30.9	169.4	− .60
349.5	+ .29	Abulfeda A	−16.2	169.5	− .29
349.5	− .94	Cassini α	+43.1	169.5	+ .94
349.63	− .07	Agrippa	+ 4.07	169.63	+ .07
349.8	− .79	Calippus	+38.4	169.8	+ .79
349.9	− .03	Godin	+ 1.7	169.9	+ .03
350.0	−0.21	Manilius C	+12.0	170.0	+0.21
350.3	−1.27	Egede A	+51.7	170.3	+1.27
350.5	−1.12	Egede	+48.3	170.5	+1.12
350.6	+0.02	Hipparch. M	− 1.4	170.6	−0.02
350.9	+ .96	Stöfler D	−43.7	170.9	− .96
351.22	− .26	Manilius	+14.45	171.22	+ .26
351.6	+0.51	Apianus B	−27.0	171.6	−0.51
351.7	−2.01	Archytas C	+63.5	171.7	+2.01
351.7	+0.13	Hipparch. C	− 7.3	171.7	−0.13
351.9	+ .80	Stöfler L	−38.8	171.9	− .80
352.0	+ .31	Airy A	−17.3	172.0	− .31
352.0	−0.49	Hadley r	+26.1	172.0	+0.49
352.4	+1.18	Cuvier α]	−49.7	172.4	−1.18

Sun's Co-longitudes

At Sunrise.			Latitude.	At Sunset.	
°			° '	°	
352·8	−0·89	Cassini C	1	172·8	+0·89
352·9	− ·30	Manilius B	+ 16·6	172·9	+ ·30
353·0	+0·05	Hipparch. E	− 2·8	173·0	−0·05
353·0	+ 1·75	Zach B	−60·3	173·0	−1·75
353·2	−0·62	pic	+31·7	173·2	+0·62
353·3	− ·03	Rhäticus B	+ 1·7	173·5	+ ·03
353·3	−0·23	Manilius D	+13·1	173·3	+0·23
353·4	−1·44	Archytas A	+55·3	173·4	+1·44
353·6	+0·65	Nonius B	−33·1	173·6	−0·65
353·6	− ·14	Hyginus	+ 8·0	173·6	+ ·14
353·8	+ ·23	Albategnius E	−13·0	173·8	− ·23
354·1	+ ·47	Apianus A	−25·4	174·1	− ·47
354·3	+ ·14	Hipparch. A	− 8·1	174·3	− ·14
354·4	− ·74	Theætetus	+36·4	174·4	+ ·74
354·5	−0·52	Hadley β	+27·4	174·5	+0·52
354·6	−1·16	Egede d	+49·3	174·6	+1·16
354·7	−0·03	Rhäticus A	+ 1·7	174·7	+0·03
354·7	+1·39	Lilius A	−54·3	174·7	−1·39
354·9	+0·96	Stöfler E	−43·7	174·9	−0·96
355·0	+ ·29	Airy C	−16·0	175·0	− ·29
355·3	− ·99	Cassini G	+44·7	175·3	+ ·99
355·4	+ ·58	Aliacensis A	−30·3	175·4	− ·58
355·5	−0·43	Aratus	+23·5	175·5	+0·43
355·78	−1·63	Archytas	+58·40	175·78	+1·63
355·85	−0·85	Cassini A	+40·38	175·85	+0·85
356·03	+ ·20	Albateguius A	−11·36	176·03	− ·20
356·1	− ·07	Triesnecker	+ 4·2	176·1	+ ·07
356·12	+ ·37	La Caille A	−20·5	176·2	− ·37
356·6	+ ·81	Stöfler K	−39·15	176·6	− ·81
356·8	− ·37	Conon A	+20·4	176·8	+ ·37
357·03	+ ·53	Werner A	−27·76	177·03	− ·53
357·1	+1·96	Curtius B	−63·0	177·1	−1·96
357·2	−0·55	Autolycus γ	+28·6	177·2	+0·55
358·0	+ ·14	Hipparch. K	− 7·9	178·0	− ·14
358·05	− ·39	Conon	+21·53	178·05	+ ·39
358·1	+0·24	Parrot B	−13·4	178·1	−0·24
358·2	−3·11	Barrow A	+72·2	178·2	+3·11
358·3	−0·44	Bradley A	+23·55	178·3	+0·44
358·6	− ·13	Ukert	+7·55	178·6	+ ·13
358·6	+ ·05	Réaumur A	− 2·7	178·6	− ·05
358·8	+ ·94	Licetus G	−43·35	178·8	− ·94
358·9	− ·07	Triesnecker A	+ 3·95	178·9	+ ·07
358·9	+ ·36	La Caille C	− 19·95	178·9	− ·36

Sun's Co-longitudes

At Sunrise.			Latitude.	At Sunset.	
$358°99$	$-\cdot67$	Aristillus	$+33°76$	$178°99$	$+\cdot67$
$359\cdot0$	$-\cdot91$	Cassini η	$+42\cdot2$	$179\cdot0$	$+\cdot91$
$359\cdot4$	$+\cdot51$	Werner A	$-27\cdot1$	$179\cdot4$	$-\cdot51$
$359\cdot6$	$-\cdot01$	Triesnecker B	$+\ 0\cdot7$	$179\cdot6$	$+\cdot01$
$359\cdot6$	$-\cdot56$	Autolycus A	$+29\cdot1$	$179\cdot6$	$+\cdot56$
$359\cdot6$	$+\cdot61$	Walter A	$-31\cdot4$	$179\cdot6$	$-\cdot61$
$359\cdot9$	$+0\cdot08$	Réaumur A	$-\ 4\cdot4$	$179\cdot9$	$-0\cdot08$
$0\cdot0$	$+2\cdot16$	Curtius δ	$-65\cdot2$	$180\cdot0$	$-2\cdot16$
$0\cdot0$	$+0\cdot79$	Nasireddın a	$-38\cdot3$	$180\cdot0$	$-0\cdot79$
$0\cdot6$	$+1\cdot07$	Saussure d	$-47\cdot0$	$180\cdot6$	$-1\cdot07$
$0\cdot7$	$+0\cdot16$	Ptolemäus A	$-\ 8\cdot9$	$180\cdot7$	$-0\cdot16$
$0\cdot8$	$-1\cdot23$	Plato A	$+50\cdot9$	$180\cdot8$	$+1\cdot23$
$1\cdot0$	$-1\cdot92$	Timäus	$+62\cdot45$	$181\cdot0$	$+1\cdot92$
$1\cdot3$	$-0\cdot16$	Bode A	$+\ 8\cdot9$	$181\cdot3$	$+0\cdot16$
$1\cdot3$	$-\cdot85$	Pico A	$+40\cdot3$	$181\cdot3$	$+\cdot85$
$1\cdot3$	$+\cdot53$	Regiomont. A	$-27\cdot8$	$181\cdot3$	$-\cdot53$
$1\cdot8$	$-\cdot61$	Archimedes C	$+31\cdot4$	$181\cdot8$	$+\cdot61$
$2\cdot15$	$+\cdot10$	Herschel	$-\ 5\cdot62$	$182\cdot15$	$-\cdot10$
$2\cdot2$	$-\cdot25$	Marco Polo A	$+14\cdot2$	$182\cdot2$	$+\cdot25$
$2\cdot2$	$+\cdot33$	Arzachel A	$-18\cdot1$	$182\cdot2$	$-\cdot33$
$2\cdot51$	$-0\cdot12$	Bode	$+\ 6\cdot62$	$182\cdot51$	$+0\cdot12$
$2\cdot5$	$+1\cdot38$	Deluc H	$-54\cdot1$	$182\cdot5$	$-1\cdot38$
$2\cdot55$	$-0\cdot37$	Huyghens	$+20\cdot4$	$182\cdot5$	$+0\cdot37$
$2\cdot6$	$+\cdot75$	Lexell a	$-36\cdot7$	$182\cdot6$	$-\cdot75$
$2\cdot6$	$+0\cdot49$	Purbach A	$-25\cdot9$	$182\cdot6$	$-0\cdot46$
$3\cdot0$	$+2\cdot00$	Cysatus A	$-63\cdot4$	$183\cdot0$	$-2\cdot00$
$3\cdot24$	$+0\cdot23$	Alphons A	$-12\cdot99$	$183\cdot24$	$-0\cdot23$
$3\cdot6$	$+0\cdot91$	Saussure B	$-42\cdot4$	$183\cdot6$	$-\cdot91$
$3\cdot7$	$-0\cdot89$	Pico A	$+41\cdot75$	$183\cdot7$	$+0\cdot89$
$4\cdot1$	$-1\cdot15$	Plato μ	$+49\cdot1$	$184\cdot1$	$+1\cdot15$
$4\cdot2$	$+0\cdot54$	Regiomont. B	$-28\cdot5$	$184\cdot2$	$-0\cdot54$
$4\cdot4$	$-\cdot21$	Bode C	$+12\cdot0$	$184\cdot4$	$+\cdot21$
$4\cdot6$	$+\cdot17$	Ptolemæus a	$-\ 9\cdot4$	$184\cdot6$	$-\cdot17$
$4\cdot8$	$+\cdot77$	Lexell B	$-37\cdot6$	$184\cdot8$	$-\cdot77$
$4\cdot9$	$-0\cdot43$	Archimedes A	$+23\cdot1$	$184\cdot9$	$+0\cdot43$
$5\cdot0$	$-2\cdot56$	Epigenes B	$+68\cdot7$	$185\cdot0$	$+2\cdot56$
$5\cdot22$	$+0\cdot06$	Mösting A	$-3\cdot18$	$185\cdot22$	$-0\cdot06$
$5\cdot2$	$+1\cdot14$	Maginus A	$-48\cdot85$	$185\cdot2$	$-1\cdot14$
$5\cdot4$	$+0\cdot46$	Purbach K	$-24\cdot9$	$185\cdot4$	$-0\cdot46$
$5\cdot4$	$-0\cdot71$	Kirch β	$+35\cdot2$	$185\cdot4$	$+0\cdot71$
$5\cdot5$	$+1\cdot75$	Deluc E	$-60\cdot3$	$185\cdot5$	$-1\cdot75$
$5\cdot79$	$+0\cdot39$	Thebit A	$-21\cdot29$	$185\cdot79$	$-0\cdot39$
$5\cdot9$	$+\cdot01$	Mösting	$-\ 0\cdot6$	$185\cdot9$	$-\cdot01$

Sun's co-longitudes •

At Sunrise.			Latitude.	At Sunset.	
6·1	− ·81	Kirch	+ 39·1	186·1	+ ·81
6·5	− ·53	Archimedes A	+ 27·9	186·5	+ ·53
6·6	−0·05	Schröter A	+ 3·0	186·6	+0·05
6·8	−1·20	Plato γ	+ 50·2	186·8	+1·20
6·9	+0·82	Sasserides d	− 39·4	186·9	−0·82
7·10	+1·19	Maginus A	−49·95	187·10	−1·19
7·14	+2·71	Moretus	−69·76	187·14	−2·71
7·4	−0·12	Schröter Γ	+ 6·6	187·4	+0·12
7·4	+ ·27	Alpetragius B	− 14·9	187·4	− ·27
7·7	− ·30	Wolf	− 16 6	187·7	+ ·30
8·1	+ ·21	Davy A	− 12·1	188·1	− ·21
8·1	+0·44	Thebit A	− 23·7	188·1	−0·44
8·3	+1·00	Pictet a	− 44·9	188·3	−1·00
8·33	+0·62	Hell	− 31·98	188·33	−0·62
8·4	+1·49	Clavius K	− 56·2	188·4	−1·49
8·5	−0·94	Pico B	+ 43·1	188·5	+0·94
8·74	+ ·08	Lalande	− 4·33	188·74	− ·08
8·75	+ ·35	Thebit D	− 19·5	188·75	− ·35
8·8	− ·28	Eratosthenes E	+ 15·4	188·8	+ ·28
9·1	+0·71	Sasserides B	− 35·5	189·1	−0·71
9·21	−1·92	Pico	+ 45·47	189·21	+1·02
9·5	−0·51	Archimedes B	+ 27·2	189·5	+0·51
9·5	− ·14	Schröter C	+ 8·1	189·5	+ ·14
9·6	+ ·93	Tycho, prec. wall	− 42·9	189·6	− ·93
10·1	+ ·11	Lalande A	− 6·4	190·1	− ·11
10·1	+0·26	Alpetragius C	− 14·4	190·1	−0·26
10·4	−1·86	Fontenelle b	+ 61·7	190·4	+1·86
10·52	−2·46	Epigenes H	+ 67·89	190·52	+2·46
10·9	+1·34	Maginus H	− 53·2	190·9	−1·34
11·44	−0·26	Eratosthenes C	+ 14·44	191·44	+0·26
11·6	− ·93	Pico D	+ 42·9	191·6	+ ·93
11·6	+ ·20	Guerike C	− 11·2	191·6	− ·20
11·87	+ ·93	Tycho	− 42·87	191·87	− ·93
11·9	−0·03	Gambart B	+ 1·95	191·9	+0·03
11·9	−1·23	Plato E	+ 50·8	191·9	+1·23
12·3	+5·00	Newton	− 78·7	192·3	−5·00
12·4	+0·53	Pilatus C.	− 28·1	192·4	−0·53
12·5	+2·27	Grümberger A	− 66·25	192·5	−2·27
12·5	+1·75	Clavius a	− 60·2	192·7	−1·75
13·00	−0·50	Timocharis	+ 26·71	193·00	+0·50
13·1	+ ·40	Thebit C	− 21·65	193·1	− ·40
13·4	+ ·03	Lalande E	− 1·6	193·4	+ ·20
13·4	− ·20	Stadius B	+ 11·4	193·4	− ·03

C

Sun's co-longitudes

At Sunrise.		Name	Latitude.	At Sunset.	
13°5	+ ·69	Gauricus a	− 34·7	193°5	− ·69
13·8	+ ·18	Guerike A	− 10·3	193·8	− ·18
14·0	−0·08	Gambart ε	+ 4·8	194·0	+0·08
14·4	+ 1·00	Tycho d	− 45·0	194·4	− 1·00
14·67	+ 1·56	Clavius C	− 57·28	194·67	− 1·56
15·2	+ 0·25	Guerike B	− 14·1	195·2	− 0·25
15·3	− 0·02	Gambart	+ 1·0	195·3	+ 0·02
15·5	− 1·04	Pico B	+ 46·1	195·5	+ 1·04
15·6	+ 0·04	Fra Mauro H	− 2·4	195·6	− 0·04
15·6	− 2·19	Fontenelle A	+ 65·5	195·6	+ 2·19
15·66	+ 0·16	Parry A	− 9·33	195·66	− 0·16
15·7	− ·66	Carlini D	+ 33·4	195·7	+ ·66
16·3	+ ·08	Fra Mauro A	− 4·5	196·3	− ·08
16·99	+ ·51	Hesiodus B	− 26·84	196·99	− ·51
17·	+ ·81	Heinsius a	− 39·	197·	− ·81
17·0	+ 0·19	Guerike A	− 10·95	197·0	− 0·19
17·4	− 3·02	Anaxagoras Δ	+ 71·7	197·4	+ 3·02
17·9	− 1·31	Plato B	+ 52·6	197·9	+ 1·31
18·0	− 0·49	Lambert Γ	+ 25·9	198·0	+ 0·49
18·0	− 0·27	Gay Lussac ι	+ 15·1	198·0	+ 0·27
18·0	+ 1·16	Longomont. a	− 49·3	198·0	+ 1·16
18·4	+ 0·35	Bulliald D	− 19·25	198·4	− 0·35
18·5	− ·16	Copernicus A	+ 9·1	198·5	+ ·16
18·7	+ ·64	Cichus B	− 32·7	198·7	− ·64
18·75	− ·01	Gambart A	+ 0·84	198·75	+ ·01
19·7	+ 0·24	Lubiniezki A	− 13·7	199·7	− 0·24
19·7	− 1·95	Fontenelle B	+ 62·8	199·7	+ 1·95
19·9	− 1·01	Laplace F	+ 45·2	199·9	+ 1·01
19·93	− 0·16	Copernicus B	+ 9·35	199·93	+ 0·16
20·00	− 0·10	Copernicus A	+ 5·8	200·0	+ 0·10
20·2	+ 1·99	Blancanus A	− 63·3	200·2	− 1·99
20·4	− 0·23	Gay Lussac A	+ 13·1	200·4	+ 0·23
20·4	− ·84	Helicon A	+ 40·2	200·4	+ ·84
20·57	− ·37	Pytheas	+ 20·23	200·57	+ ·37
20·7	− ·58	Carlini B	+ 30·0	200·7	+ ·58
20·7	+ ·10	Fra Mauro A	− 5·5	200·7	− ·10
20·85	− ·47	Lambert	+ 25·35	200·85	+ ·47
21·4	− ·08	Reinhold A	+ 4·3	201·4	+ ·08
21·6	+ ·43	Bulliald. B	− 23·4	201·6	− ·43
22·0	+ ·99	Wilhelm A	− 44·5	202·0	− ·99
22·10	+ ·37	Bullialdus	− 20·43	202·10	− ·37
22·6	− ·05	Reinhold	+ 3·1	202·6	+ ·05
22·7	+ ·55	Kies A	− 28·6	202·7	− ·55

Sun's co-longitudes

At Sunrise.			Latitude.	At Sunset.	
22°9	− ·84	Helicon	+ 40°2	202°9	÷ ·84
23·0	− ·13	Copernicus B	+ 7·4	203·0	+ ·13
23·1	+ ·70	Capuanus ♂	− 34·9	203·1	− ·70
23·3	÷ 0·26	Lubiniezki B	− 14·4	203·3	− 0·26
23·4	− 1·07	Laplace B	+ 46·9	203·4	÷ 1·07
23·5	+ 1·33	Longomont. A	− 53·0	203·5	− 1·33
24·0	− 1·36	Condamine E	+ 53·7	204·0	+ 1·36
24·01	− 0·66	Carlini	+ 33·38	204·01	+ 0·66
24·2	+ ·44	Bulliald C	− 23·9	204·2	− ·44
24·4	− ·28	Gay Lussac ν	+ 15·7	204·4	+ ·28
24·6	+ ·55	Mercator b	− 28·7	204·6	− ·55
25·16	− 0·52	Lahire	+ 27·31	205·16	+ 0·52
25·3	− 1·01	Laplace A	+ 45·4	205·3	÷ 1·01
25·6	+ 0·25	Lubiniezki C	− 13·8	205·6	− 0·25
25·6	− 1·86	Fontenelle C	÷ 61·8	205·6	+ 1·86
26·0	− 0·22	Meyer C	+ 12·4	206·0	÷ 0·22
26·4	+ ·36	Agatharchides ♂	− 19·7	206·4	− ·36
26·56	− ·94	Laplace A	+ 43·27	206·56	÷ ·94
26·56	+ 0·01	Landsberg	− 0·50	206·56	− 0·01
26·60	+ 1·73	Scheiner A	− 59·97	206·60	− 1·73
26·8	− 0·17	Milichius B	+ 9·4	206·8	+ 0·17
27·0	+ 0·67	Capuanus B	− 33·9	207·0	− 0·67
27·0	+ 3·19	Klaproth b	− 72·6	207·0	− 3·19
27·2	+ 0·15	Euclides B	− 8·6	207·2	− 0·15
27·2	− 1·14	Maupertuis Z	+ 48·8	207·2	+ 1·14
27·45	+ 0·52	Campanus	− 27·61	207·45	− 0·52
27·45	+ 1·13	Bayer B	− 48·5	207·45	− 1·13
27·6	+ 0·84	Hainzel C	− 40·1	207·6	− 0·84
27·9	− ·12	Hortensius	÷ 6·9	207·9	÷ ·12
28·2	+ ·05	Landsberg B	− 2·6	208·2	− ·05
28·83	− ·28	Mayer	÷ 15·54	208·83	+ ·28
28·95	− 0·42	Euler	− 22·96	208·95	÷ 0·42
29·2	+ 1·24	Bayer A	− 51·1	209·2	− 1·24
29·26	+ 0·33	Euclides	− 7·17	209·26	− 0·13
29·41	+ 0·93	Hainzel A	− 42·99	209·41	− 0·93
29·5	− 1·38	Condamine a	÷ 54·0	209·5	+ 1·38
29·7	+ 0·33	Agatharchides H	− 18·1	209·7	− 0·33
29·8	− 1·59	Condamine B	÷ 57·9	209·8	+ 1·59
29·9	− 0·18	Milichius	+ 10·3	209·9	+ 0·18
30·1	+ 0·19	Euclides B	− 11·0	210·1	− 0·19
30·7	+ 1·66	Scheiner B	− 59·0	210·7	− 1·66
30·7	·00	Landsberg A	− 0·1	210·7	·00
30·8	+ 0·58	Ramsden A	− 30·2	210·8	− 0·58

Sun's co-longitudes

At Sunrise.			Latitude.	At Sunset.	
30·9	− ·26	Mayer Δ	+ 14·3	210·9	+ ·26
31·0	+ ·77	Hainzel B	− 37·6	211·0	− ·77
31·5	− ·68	Delisle C	+ 34·3	211·5	+ ·68
31·70	+ ·64	Ramsden α	− 32·43	211·70	− ·64
31·9	− ·31	Mayer β	+ 17·0	211·9	+ ·31
32·3	− ·63	Delisle b	+ 32·3	212·3	+ ·63
32·3	− ·05	Encke A	+ 3·0	212·3	+ ·05
32·5	+ 0·72	Hippalus B	− 35·8	212·5	− 0·72
32·7	− 1·11	Bianchini γ	+ 47·9	212·7	+ 1·11
33·8	+ 0·23	Gassendi D	− 13·1	213·8	− 0·23
33·8	− ·52	Diophantus	+ 27·4	213·8	+ ·52
34·02	− ·87	Heraclides	+ 41·13	214·02	+ ·87
34·3	− 0·37	Euler B	+ 20·4	214·3	+ 0·37
34·7	+ 1·26	Bayer	− 51·6	214·7	− 1·26
34·80	− 0·58	Delisle	+ 29·99	214·80	+ 0·58
35·3	− 0·13	Kepler B	+ 7·4	215·3	+ 0·13
35·6	− 1·30	Bouguer	+ 52·5	215·6	+ 1·30
35·7	+ 0·67	Ramsden D	− 33·65	215·7	− 0·67
35·8	+ 1·61	Weigel A	− 58·1	215·8	− 1·61
36·0	+ 0·94	Hainzel F	− 43·1	216·0	− 0·94
36·0	+ ·47	Döppelmayer D	− 25·35	216·0	− ·47
36·4	− 0·06	Encke ε	+ 3·5	216·4	+ 0·06
36·5	+ 1·06	Schiller A	− 46·7	216·5	− 1·06
36·6	− 0·38	Euler A	+ 20·8	216·6	+ 0·38
36·9	+ 0·39	Gassendi S	− 21·3	216·9	− 0·39
37·0	+ 2·69	Wilson α	− 69·6	217·0	− 2·69
37·1	− 0·26	Bessarion	+ 14·6	217·1	+ 0·26
37·12	+ ·58	Vitello	− 30·01	217·12	− 0·58
37·5	+ ·14	Euclides α	− 7·8	217·5	− ·14
37·71	− 0·14	Kepler	+ 7·77	217·71	+ 0·14
38·0	− 1·04	Sharp B	+ 46·2	218·0	+ 1·04
38·5	+ 0·10	Flamsteed Γ	− 5·5	218·5	− 0·10
39·0	+ ·21	Letronne A	− 11·9	219·0	− ·21
39·0	− ·38	Euler C	+ 21·0	219·0	+ ·38
39·2	+ ·76	Drebbel α	− 37·3	219·2	− ·76
39·4	− ·71	Mairan b	+ 35·4	219·4	+ ·71
39·5	− ·80	Mairan A	+ 38·5	219·5	+ ·80
39·53	+ 0·30	Gassendi	− 16·93	219·53	− 0·30
39·6	− 1·60	Horrebow	+ 58·0	219·6	+ 1·60
39·7	− 0·30	Bessarion A	+ 16·6	219·7	+ 0·30
39·7	− 0·64	Delisle A	+ 32·8	219·7	+ 0·64
40·0	+ 1·31	Schiller α	− 52·7	220·0	− 1·31
40·1	− 1·20	Harpalus A	+ 50·1	220·1	+ 1·20

Sun's co-longitudes

At Sunrise.			Latitude.	At Sunset.	
40·2	·00	Encke E	c·o	220·2	·00
40·3	+2·01	Bettinus	−63·6	220·3	−2·01
40·5	−0·53	Aristarch. Δ	+27·9	220·5	+0·53
40·7	−1·01	Sharp	+45·2	220·7	+1·01
41·1	+0·08	Flamsteed *f*	−4·85	221·1	−0·08
41·1	+·53	Döppelmayer A	−28·0	221·1	−·53
41·3	+·20	Letronne B	−11·2	221·3	−·20
41·3	−·58	Wollaston A	+30·05	221·3	+·58
41·4	−·35	Bessarion D	+19·3	221·4	+·35
41·5	−·17	Kepler C	+9·8	221·5	+·17
42·3	−·28	Bessarion C	+15·6	222·3	+·28
43·0	+·14	Flamsteed A	−7·85	223·0	−·14
43·3	+0·33	Gassendi A	−18·1	223·3	−0·33
43·61	−1·30	Harpalus	+52·48	223·61	+1·30
44·1	−1·09	Sharp A	+47·6	224·1	+1·09
44·20	+0·08	Flamsteed	−4·51	224·20	−0·08
44·5	+1·12	Phocylides *d*	−48·2	224·5	−1·12
44·6	+0·27	Gassendi F	−15·15	224·6	−0·27
44·7	−·89	Mairan	+41·7	224·7	+·89
44·9	−0·02	Reiner F.	+0·9	224·9	+0·02
45·0	+1·62	Segner	−58·3	225·0	−1·62
45·4	+0·52	Döppelmeyer β	−27·5	225·4	−0·52
45·5	−1·65	Horrebow A	+58·8	225·5	+1·65
45·6	−0·21	Marius A	+12·1	225·6	+0·21
45·6	+·45	Mersenius F	−24·14	225·6	−·45
45·7	+·35	Mersenius C	−19·3	225·7	−·35
45·9	+·10	Flamsteed C	−5·7	225·9	−·10
46·90	−0·58	Wollaston	+30·29	226·90	+0·58
47·0	−1·08	Sharp *b*	+47·2	227·0	+1·08
47·0	+1·84	Zuchius	−61·5	227·0	−1·84
47·2	−0·28	Marius B	+15·85	227·2	+0·28
47·20	−·43	Aristarch	+23·29	227·20	+·43
47·3	−·09	Reiner B	+5·15	227·3	+·09
47·7	+0·62	Fourier A	−31·8	227·7	−0·62
47·8	−2·39	Anaximander A	+67·3	227·8	+2·39
48·21	+0·86	Drebbel	−40·79	228·21	−0·86
48·5	+1·36	Phocylides A	−53·7	228·5	−1·36
49·0	+1·00	Schikard β γ	−45·0	229·0	−1·00
49·96	+0·25	Billy	−14·00	229·96	−0·25
50·4	−·20	Marius	+11·45	230·4	+·20
50·9	+·37	Mersenius B	−20·4	230·9	−·37
51·0	−·48	Herodot. M	+25·6	231·0	+·48
51·2	+·20	Hansteen	−11·5	231·2	−·20

Sun's co-longitudes

At Sunrise.			Latitude.	At Sunset.	
51·4	− ·61	Wollaston *c*	+ 31·2	231·4	+ ·61
51·7	+ ·57	Fourier α	− 29·7	231·7	− ·57
51·9	− ·39	Herodot. A	+ 21·2	231·9	+ ·39
52·0	+ ·44	Cavendish A	− 23·8	232·0	− ·44
52·1	+ 0·76	Lehmann α	− 37·4	232·1	− 0·76
53·6	− 1·10	Repsold *d*	+ 47·7	233·6	+ 1·10
54·4	+ 0·52	Vieta δ	− 27·6	234·4	− 0·52
54·4	− 1·64	Pythagoras A	+ 58·6	234·4	+ 1·64
54·73	− 0·11	Reiner	+ 6·51	234·73	+ 0·11
54·9	− 0·50	Herodot. D	+ 26·45	234·9	+ 0·50
55·58	+ 1·41	Phocylides E	− 54·58	235·58	− 1·41
56·8	+ 0·29	Fontana	− 16·3	236·8	− 0·29
56·83	+ ·64	Fourier B	− 32·68	236·83	− ·64
56·8	− 0·87	Harding C	+ 40·95	236·8	+ 0·87
57·0	+ 1·06	Schikard ε	− 46·8	237·0	− 1·06
57·6	+ 0·11	Damoiseau *c*	− 6·0	237·6	− 0·11
58·4	− ·43	Herodot C	+ 23·2	238·4	+ ·4
59·4	+ ·25	Sirsalis S	− 14·3	239·4	− ·25
59·6	− 0·75	Harding B	+ 36·7	239·6	+ 0·75
60·0	+ 1·16	Wargentin	− 49·2	240·0	− 1·16
60·2	+ 0·37	Fontana A	− 20·4	240·2	− 0·37
61·61	− 1·97	Pythagoras	+ 63·06	241·61	+ 1·97
62·0	+ 0·12	Damoiseau D	− 6·8	242·0	− 0·12
62·3	− ·18	Galileo	+ 10·2	242·3	+ ·18
62·5	+ 0·01	Lohrmann A	− 0·75	242·5	− 0·01
63·0	− 1·33	Oenopides A	+ 53·1	243·0	+ 1·33
63·50	+ 0·45	Byrgius A	− 24·38	243·50	− 0·45
65·1	− ·04	Hevel B	+ 2·3	245·1	+ ·04
65·5	+ ·69	Piazzi Γ	− 34·7	245·5	− ·69
65·81	− ·38	Seleucus	+ 20·91	245·81	+ ·38
66·67	+ ·30	Crüger	− 16·77	246·67	− ·30
67·0	− ·11	Cavalerius A	+ 6·2	247·0	+ ·11
67·0	+ ·22	Rocca B	− 12·4	247·0	− ·22
67·08	− ·61	Lichtenberg	+ 31·42	247·08	+ ·61
67·7	+ ·61	Lagrange A	− 31·6	247·7	− ·61
67·9	− ·49	Briggs	+ 26·15	247·9	+ ·49
69·3	+ ·04	Grimaldi B	− 2·4	249·3	− ·04
69·4	+ ·19	Rocca C	− 10·95	249·4	− ·19
70·45	+ ·37	Eichstädt B	− 20·52	250·45	+ ·37
70·5	− ·43	Seleucus B	+ 23·4	250·5	+ ·43
70·87	− ·94	Harding	+ 43·14	250·87	+ ·94
70·89	+ 0·09	Grimaldi A	− 4·91	250·89	− 0·09
72·5	− 1·21	Repsold A	+ 50·4	252·5	+ 1·21

Sun's co-longitudes

At Sunrise.		Latitude.	At Sunset.	
73·0	−0·26	Cardanus *b* +14·7	253·0	+0·26
75·0	− ·04	Riccioli B + 2·1	255·0	+ ·04
76·2	−0·84	Harding A +40·1	256·2	+0·84
77·0	−1·82	Cleostratus A +61·25	257·0	+1·82
77·2	−1·54	Xenophanes A +57·0	257·2	+1·54
77·29	+0·40	Eichstädt −21·65	257·29	−0·40
77·54	−0·14	Olbers + 7·92	257·54	+0·14

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Gr. Midnight. 1873.	Sun's Centre in the Zenith.		Earth's Centre in the Zenith.		Greatest Geocentric Libration.	
	Colong.	Lat.	Colong.	Lat.	Amount.	Direction.
Jan. 31	310·90	−1·45	84·53	+5·79	7·96	46·8 n. p. quadrant.
Feb. 1	323·08	1·46	83·30	4·84	8·26	36·0 ,,
2	335·26	−1·47	82·57	+3·62	8·26	26·1 ,,
3	347·43	1·48	82·32	2·24	8·00	16·3 ,,
4	359·60	1·49	82·51	+0·79	7·53	6·0 n. p.
5	11·76	1·50	83·03	−0·67	7·00	5·5 s. p.
6	23·91	1·51	83·80	2·06	6·53	18·4 ,,
7	36·06	1·52	84·78	3·33	6·19	32·6 ,,
8	48·20	1·53	86·07	4·42	5·92	48·4 ,,
9	60·34	−1·53	87·31	−5·34	5·98	63·3 ,,
10	72·47	1·54	88·58	6·00	6·16	76·8 ,,
11	84·61	1·54	89·85	6·40	6·40	88·7 s. p.
12	96·75	1·54	91·12	6·52	6·62	80·3 s f.
13	108·88	1·55	92·32	6·36	6·77	70·0 ,,
14	121·02	1·55	93·55	5·91	6·89	59·1 ,,
15	133·16	1·55	94·68	5·20	6·99	48·1 ,,
16	145·31	−1·54	95·71	−4·25	7·11	36·8 ,,
17	157·46	1·54	96·59	3·09	7·28	25·2 ,,
18	169·62	1·54	97·26	1·76	7·47	13·6 ,,
19	181·79	1·53	97·65	−0·30	7·66	2·3 s. f.
20	193·96	−1·53	97·69	+1·20	7·78	8·9 n. f.
Mar. 1	303·74	−1·49	83·80	+3·88	7·31	32·1 n. p.
2	315·94	−1·48	82·90	+2·46	7·54	19·2 ,,
3	328·13	1·48	82·51	+0·96	7·55	7·3 n. p.
4	340·32	1·48	82·59	−0·55	7·43	4·3 s. p.
5	352·50	1·47	83·08	1·99	7·20	16·1 ,,
6	4·67	1·46	83·88	3·30	6·95	28·4 ,,
7	16·84	1·46	84·93	4·42	6·72	41·2 ,,

Gr. Midgnight. 1873.	Sun's Centre in the Zenith.		Earth's Centre in the Zenith.		Greatest Geocentric Libration.	
	Coloug.	Lat.	Colong.	Lat.	Amount.	Direction.
Mar. 8	29°·01	1°·45	86°·12	5°·34	·6·60	54°·1 ,,
9	41·17	−1·44	87·40	−6·02	6·56	66·7 ,,
10	53·32	1·43	88·69	6·43	6·56	78·5 ,,
11	65·47	1·42	89·98	6·57	6·57	89·8 s. p.
12	77·63	1·41	91·21	6·42	6·53	79·4 s. f.
13	89·78	1·39	92·37	5·99	6·44	68·5 ,,
14	101·93	1·38	93·44	5·28	6·30	56·9 ,,
15	114·08	1·36	94·41	4·33	6·18	44·6 ,,
16	126·24	−1·35	95·27	−3·16	6·14	31·0 ,,
17	138·40	1·33	95·97	1·83	6·23	16·8 ,,
18	150·56	1·31	96·49	−0·38	6·50	3·4 s. f.
19	162·73	1·30	96·78	+1·12	6·87	9·4 n. f.
20	174·91	1·28	96·78	2·59	7·26	21·0 ,,
21	187·09	1·26	96·43	3·95	7·54	31·7 ,,
22	199·28	−1·24	95·72	+5·12	7·67	42·0 n. f.
30	297·00	−1·11	83·87	+1·40	6·29	12·9 n. p.
31	309·22	1·09	83·41	−0·21	6·59	1·8 s. p.
Apr. 1	321·43	1·08	83·39	1·74	6·83	14·8 ,,
2	333·63	1·06	83·77	3·14	6·97	26·8 ,,
3	345·83	1·04	84·49	4·35	7·02	38·4 ,,
4	358·03	1·02	85·46	5·33	7·01	49·6 ,,
5	10·22	1·00	86·61	6·06	6·94	60·9 ,,
6	22·40	−0·98	87·86	−6·52	6·86	71·9 ,,
7	34·58	0·96	89·15	6·70	6·75	82·8 s. p.
8	46·76	0·94	90·40	6·60	6·61	86·5 s. f.
9	58·93	0·92	91·58	6·20	6·39	75·8 ,,
10	71·10	0·89	92·65	5·53	6·13	64·5
11	83·27	0·87	93·58	4·59	5·82	52·1 ,
12	95·44	0·84	94·35	3·42	5·53	38·2 ,,
13	107·60	−0·81	94·95	−2·07	5·36	22·7 ,,
14	119·77	0·79	95·35	−0·59	5·38	6·3 s. f.
15	131·95	0·76	95·56	+0·94	5·64	9·6 n. f.
16	144·13	0·73	95·55	2·45	6·07	23·9 ,,
17	156·31	0·70	95·31	3·85	6·56	36·0 ,,
18	168·50	0·68	94·82	5·06	6·98	46·5 ,,
19	180·70	0·65	54·07	5·99	7·24	55·9 ,,
20	192·90	−0·62	93·08	+6·58	7·26	85·0 ,,
21	205·11	−0·60	91·88	+6·77	7·03	74·6 n. f.

Colong. $= 90° − \lambda$.